



1626

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Thomas W. Smith et al.

Application No.: 10/001,572

Filed: November 15, 2001

Examiner: K. Saeed

Art Unit: 1626

Confirmation No.: 2751

Title: PHOTOPROTECTIVE AND
LIGHTFASTNESS-ENHANCING SILOXANES

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

CERTIFICATE OF MAILING

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January 15, 2004

(Date of deposit)

Cathy Whitney

(Name of applicant, assignee,
or Registered Representative)

(Signature)

January 15, 2004

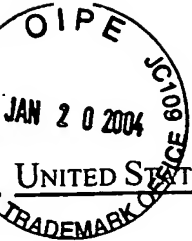
Date of Signature

The references cited herein were cited by the Examiner in co-pending application, U.S. Serial No. 10/001,741. For the Examiner's convenience, a copy of the Office Action citing these references is enclosed herewith.

Respectfully submitted,

Judith L. Byorick
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LFB/cw
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,741	11/15/2001	Thomas W. Smith	D/A1505Q1	2654

7590 10/15/2003
Patent Documentation Center
Xerox Corporation
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PATENT DEPARTMENT

EXAMINER

SHOSHO, CALLIE E

ART UNIT PAPER NUMBER

1714

DATE MAILED: 10/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

*1st OA/ amend. due:
1-15-04*

DOCKETED-DLK



Office Action Summary

Application No.

10/001,741

Applicant(s)

SMITH ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 14-16 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 4-13 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11/15/01. 6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

1. Both related applications have been stricken from the IDS filed 11/15/01 since these applications are not available to the public.

However, the first copending application, Docket No. D/A1505Q, which corresponds to Application No. 10/002,342, now U.S. Patent 6,569,511 has been considered and the patent cited on the attached 892 form. The second copending application, Docket No. D/A1505, which corresponds to Application No. 1/001,572, has been considered and the "Search Notes" of the instant application has been annotated to this effect.

Specification

2. The disclosure is objected to because of the following informalities:

It is preferred that application numbers are used in place of attorney docket numbers on page 1, lines 3-4 and page 3, lines 12-13.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
5. Claims 1-3, 14-16, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marritt (U.S. 6,231,655) or Nyssen et al. (U.S. 6,245,138) either of which in view of Maycock et al. (U.S. 4,859,759) and Pearlstine et al. (U.S. 6,087,416).

Marritt discloses ink jet ink comprising water, colorant, and UV light absorbing agent. There is also disclosed a process of using the ink wherein the ink is incorporated into piezoelectric or thermal ink jet printer and then ejecting the ink onto substrate (col.1, lines 11-21,

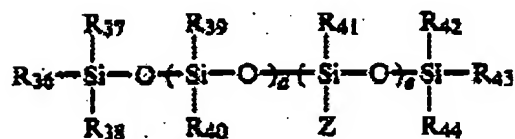
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col.4, line 54-col.5, line 1, col.14, lines 34-36). Although there is no explicit disclosure of the amount of UV light absorbing agent utilized, it would have been within the skill level of one of ordinary skill in the art to choose amount of UV light absorbing agent, including that presently claimed, which would protect the ink from light.

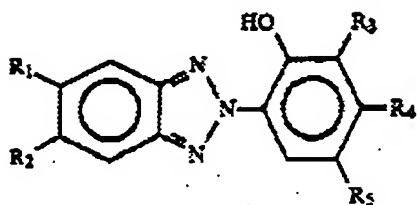
Alternatively, Nyssen et al. disclose ink jet ink comprising water, colorant, and light stabilizer. There is also disclosed a process of using the ink wherein the ink is incorporated into piezoelectric or thermal ink jet printer and then ejecting the ink onto substrate (col.1, lines 55-59, col.9, lines 54-56 and 61, and col.12, lines 4-12). Although there is no explicit disclosure of the amount of light stabilizer utilized, it would have been within the skill level of one of ordinary skill in the art to choose amount of light stabilizer, including that presently claimed, which would protect the ink from light.

The difference between Marritt or Nyssen et al. and the present claimed invention is the requirement in the claims of specific type of light absorbing or stabilizing agent.

Maycock et al. disclose the use of siloxane that contains at least one benzotrizolyl group of the formula:



where Z is:



where R₃₆-R₄₄ are hydrogen, alkyl or aryl and R₁-R₅ are each hydrogen. The motivation for using such siloxane is as an ultraviolet radiation absorbing agent (col. 1, lines 63-68, col. 8, lines 59-61, col. 9, lines 4-21, and col. 11, lines 51-66).

The above siloxane is identical to that presently claimed when n, c, and a are each 1 and d and e of Maycock et al. as set forth in the above formula are 2 and 1, respectively, with the exception that there is no hydrophilic moiety present as presently claimed. However, it is well known, as found in Pearlstine et al., to attach hydrophilic groups such as polyoxyalkylene groups to polysiloxanes in order to control the degree of compatability as well as polarity of the additive (col. 4, lines 33-44).

In light of the disclosure of ultraviolet absorbing agent disclosed by Maycock et al. as described above as well as the motivation for attaching hydrophilic group to the ultraviolet absorbing agent disclosed by Pearlstine et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such ultraviolet absorbing agent in the ink of either Marritt or Nyssen et al. in order to protect the ink from damage from UV radiation, and thereby arrive at the claimed invention.

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6. Claims 1, 14-16, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marritt (U.S. 6,231,655) or Nyssen et al. (U.S. 6,245,138) either of which in view of Meuwley et al. (U.S. 5,837,792) and Pearlstine et al. (U.S. 6,087,416).

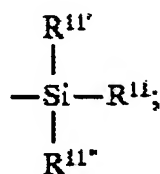
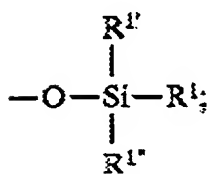
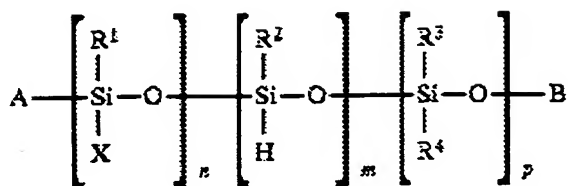
Marritt discloses ink jet ink comprising water, colorant, and UV light absorbing agent. There is also disclosed a process of using the ink wherein the ink is incorporated into piezoelectric or thermal ink jet printer and then ejecting the ink onto substrate (col.1, lines 11-21, col.4, line 54-col.5, line 1, col.14, lines 34-36). Although there is no explicit disclosure of the amount of UV light absorbing agent utilized, it would have been within the skill level of one of ordinary skill in the art to choose amount of UV light absorbing agent, including that presently claimed, which would protect the ink from light.

Alternatively, Nyssen et al. disclose ink jet ink comprising water, colorant, and light stabilizer. There is also disclosed a process of using the ink wherein the ink is incorporated into piezoelectric or thermal ink jet printer and then ejecting the ink onto substrate (col.1, lines 55-59, col.9, lines 54-56 and 61, and col.12, lines 4-12). Although there is no explicit disclosure of the amount of light stabilizer utilized, it would have been within the skill level of one of ordinary skill in the art to choose amount of light stabilizer, including that presently claimed, which would protect the ink from light.

The difference between Marritt or Nyssen et al. and the present claimed invention is the requirement in the claims of specific type of light absorbing or stabilizing agent.

Meuwly et al. disclose light stabilizer of the formula :

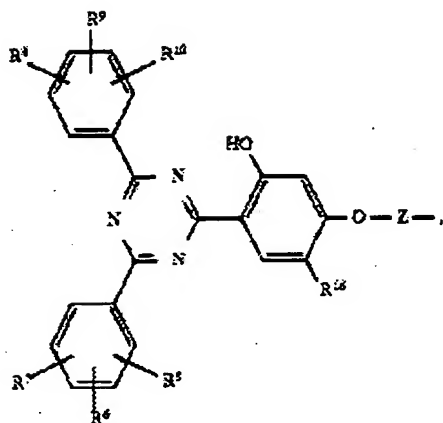
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where A is

, B is

, X is lightfastness moiety of the formula:



and R^1 - R^4 , $R^{1'}$, $R^{1''}$, $R^{11'}$, and $R^{11''}$ are each C_1 - C_{18} alkyl. The motivation for using such light stabilizer is to stabilize against damage by light, oxygen, and heat (col.1, line 42-col.2, line 34, col.3, lines 1-20, and col.9, lines 25-35).

There is no disclosure of hydrophilic moiety present as presently claimed. However, it is well known, as found in Pearlstine et al., to attach hydrophilic groups such as polyoxyalkylene

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groups to polysiloxanes in order to control the degree of compatability as well as polarity of the additive (col.4, lines 33-44).

In light of the motivation for using specific light stabilizer disclosed by Meuwly et al. as described above as well as the motivation for attaching hydrophilic group to the ultraviolet absorbing agent disclosed by Pearlstine et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such light stabilizer in the ink of either Marritt or Nyssen et al. in order to protect the ink from damage, and thereby arrive at the claimed invention.

Allowable Subject Matter

7. Claims 4-13 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4-13 and 17 would be allowable if re-written in independent form as described above given that none of the cited prior art discloses lightfastness agent of presently claimed formula II, III, IV, or V as required in claims 5-13 and further given that there is no disclosure or suggestion in the cited prior art of specific lightfastness agent of formula I as required in claims 4 and 17.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Costanzi et al. (U.S. 5,05,1458) disclose polymeric stabilizer which is polyorganosiloxane having attached sterically hindered piperidino group.

EP 1221381 discloses ink jet recording sheet comprising ink receiving layer comprising silicone having attached UV absorbing group. However, there is no disclosure that the silicone comprises hydrophilic moiety as presently claimed. Further, given the effective filing date of the reference, EP 1221381 is not applicable against the present claims under any subsection of 35 USC 102.

Yang (U.S. 5,466,768) disclose UV light absorbing compound which is siloxane having attached benzotriazole group. However, the compound is outside the scope of the lightfastness agents disclosed in presently claimed formulae I-V.

Sakuta et al. (U.S. 5,270,426) disclose ultraviolet light absorber which is organosilicone terminated with benzophenone.

Canivenc et al. (U.S. 5,102,707) disclose diorganopolysiloxane having attached benzotriazole which is used in coatings for optical fibers and as lubricant for polyvinyl chloride.

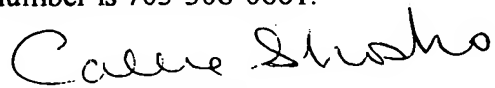
Smith et al. (U.S. 6,569,511) disclose recording sheets comprising image-receiving layer comprising lightfastness agents identical to those presently claimed, however, given the effective filing date of the reference, Smith et al. is not applicable against the present claims under any subsection of 35 USC 102.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

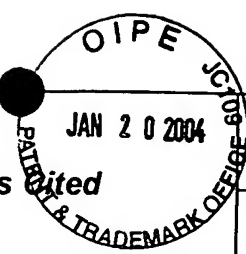
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
10/3/03

Notice of References Cited



Application/Control No.

10/001,741

Applicant(s)/Patent Under
Reexamination
SMITH ET AL.

Examiner

Callie E. Shosho

Art Unit

1714.

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
✓	A	US-6,231,655 B1	05-2001	Marritt	106/31.58
✓	B	US-6,245,138 B1	06-2001	Nyssen et al.	106/31.86
✓	C	US-5,837,792 A	11-1998	Meuwly et al.	528/27
✓	D	US-6,087,416 A	06-2000	Pearlstone et al.	523/160
✓	E	US-4,859,759 A	08-1989	Maycock et al.	528/27
✓	F	US-5,051,458 A	09-1991	Costanzi et al.	524/99
✓	G	US-5,466,768 A	11-1995	Yang	528/15
✓	H	US-5,270,426 A	12-1993	Sakuta et al.	528/15
✓	I	US-5,102,707 A	04-1992	Canivenc et al.	428/44
✓	J	US-6,569,511 B1	05-2003	Smith et al.	428/195.1
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
✓	N	EP 1221381 A2	07-2002		Ishikawa et al.	
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.